1-14. (Canceled)

15. (Previously Presented) A detector system for a particle beam apparatus, having a target structure arranged in the beam path of said particle beam apparatus, wherein said target structure has a near axis region, adjacent to the optical axis of the particle beam apparatus, a central region of a strongly electron-converting material, and a region remote from the optical axis that receives said electron-converting material.

16. (Previously Presented) The detector system according to claim 15, wherein said region remote from said axis comprises a half ring and said region near said axis is comprises a web connecting ends of said half ring form region remote from said axis.

17. (Previously Presented) The detector system according to claim 15, wherein said target structure comprises a flat diaphragm and wherein said region remote from said axis comprises a weakly electron-converting material.

18. (Previously Presented) The detector system according to claim 15, wherein said region remote from said axis is spaced further apart in the direction of said optical axis than the region of said target structure near the axis.

19. (Previously Presented) The detector system according to claim 15, wherein a detection system is provided for detection of conversion electrons emitted from said electron-converting region.

20. (Previously Presented) A particle beam apparatus having a detector system according to claim 15.

21. (Previously Presented) The particle beam apparatus according to claim 20, wherein a deflecting system comprising an electrostatic deflecting field and a magnetic deflecting field is arranged before the detector system in the direction of particles emerging from a specimen said electrostatic deflecting field and said magnetic deflecting field being aligned perpendicularly of each other.

22. (Previously Presented) The particle beam apparatus according to claim 21, wherein said electrostatic deflecting field and said magnetic deflecting field are arranged offset from each other in the direction of said optical axis of the particle beam apparatus.

23. (Previously Presented) The particle beam apparatus according to claim 22, comprising two magnetic deflecting fields and an electrostatic deflecting field.

24. (Previously Presented) The particle beam apparatus according to claim 20, further comprising a detection system for detection of said particles emitted from said electron-converting region of said target structure, said detection system being at a positive potential with respect to the target structure.

25. (Previously Presented) The particle beam apparatus according to claim 24, wherein said detection system has an electrode.

26. (Previously Presented) The particle beam apparatus according to claim 25, wherein said electrode comprises one of grid electrode or a perforated diaphragm.

27. (Previously Presented) The particle beam apparatus according to claim 24, further comprising a beam guiding tube for said particle beam apparatus wherein said detection system is arranged outside said beam guiding tube behind a hole

through a wall of said beam guiding tube or in a region of an interruption of said beam guiding tube.

28. (Previously Presented) The particle beam apparatus according to claim 20, wherein said electrostatic field and said magnetic field(s) are settable independently of each other.

29. (Previously Presented) The particle beam apparatus according to claim 20, wherein said target structure is at the potential of said beam guiding tube.

30. (Previously Presented) The detection system according to claim 15, wherein said particle beam apparatus comprises a scanning microscope.

31. (Previously Presented) The particle beam apparatus according to claim 20, wherein said particle beam apparatus comprises a scanning microscope.

32 (New). A detector system for a particle beam apparatus, having a target structure arranged in a beam path of said particle beam apparatus, wherein said target structure has a near axis region adjacent to the optical axis of the particle beam apparatus, a central region of a strongly electron-converting material, and a region remote from said optical axis at which said target structure is received within said particle beam apparatus central region,

wherein said region remote from said axis is spaced further apart in the direction of said optical axis than said region near said axis.

33 (New). A detector system for a particle beam apparatus, having a target structure arranged in the beam path of said particle beam apparatus, wherein said target structure has a near axis region, adjacent to the optical axis of the particle beam apparatus, a central region of a strongly electron-converting material, and a region

remote from the optical axis at which said target structure is received within said particle beam apparatus central region,

further comprising a detector system for detection of said particles emitted from said region of electron-converting material, said detector system being at a positive potential with respect to said target structure,

further comprising a beam guiding tube for said particle beam apparatus wherein said detection system is arranged outside said beam guiding tube behind a hole through a wall of said beam guiding tube or in a region of an interruption of said beam guiding tube.

34 (New). The detector system according to claim 33, wherein said region remote from said axis comprises a half ring and said region near said axis comprises a web connecting ends of said half ring remote from said axis.

35 (New). The detector system according to claim 33, wherein said target structure comprises a flat diaphragm and said region remote from said axis comprises a weakly electron-converting material.

36 (New). The detector system according to claim 31, further comprising a detection system for detection of conversion electrons emitted from said region of electron converting material,

said detection system being located closer to said region near said axis than to said region remote from said axis.

37 (New). The particle beam apparatus according to claim 33, further comprising a deflecting system comprising at least an electrostatic deflecting field or a magnetic deflecting field arranged before the detector system in the direction of

particles emerging from a specimen, said electrostatic deflecting field and said magnetic deflecting field being aligned perpendicularly of each other.

38 (New). The particle beam apparatus according to claim 37, wherein said electrostatic deflecting field and said magnetic deflecting field are arranged offset from each other in the direction of said optical axis of the particle beam apparatus.

39 (New). The particle beam apparatus according to claim 37, comprising two magnetic deflecting fields and an electrostatic deflecting field.

40 (New). The particle beam apparatus according to claim 32, wherein said detection system includes an electrode.

41 (New). The particle beam apparatus according to claim 40, wherein said electrode comprises one of a grid electrode or a perforated diaphragm.

42 (New). The particle beam apparatus according to claim 37, wherein said electrostatic field and said magnetic field are settable independently of each other.

43 (New). The particle beam apparatus according to claim 33, wherein said target structure is at a potential of said beam guiding tube.

44 (New). The detection system according to claim 33, wherein said particle beam apparatus comprises a scanning microscope.

45 (New). The particle beam apparatus according to claim 33, wherein said particle beam apparatus comprises a scanning microscope.